

## ABSTRACT

An apparatus for remote gas sensing comprising a light source, a photodetector, a gas cell containing gas or a zone through which the gas passes and through which light from  
5 the light source passes and is reflected back to the photodetector, wherein the light source, photodetector and gas cell are connected by a single polarisation preserving optical fibre through which light from the light source passes to the gas cell, which light reflected back from the cell passes back through the optical fibre with a different polarisation to that to the light transmitted by the light source. In one form the gas cell  
10 comprises a resonant optical cavity.